

STATE OF CALIFORNIA—RESOURCES AGENCY

EDMUND G. BROWN JR., Governor

## AIR RESOURCES BOARD LABORATORY

9528 TELSTAR AVENUE  
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June 8, 1982

TO: ALL MOTORCYCLE MANUFACTURERS

Enclosed is the subject Manufacturers Advisory Correspondence which clarifies the determination of motorcycle evaporative deterioration factors and the demonstration of motorcycle compliance with evaporative standards. Several examples have been used to describe how existing evaporative data will be treated. Any determination of the requirements should be based on the Test Procedures, MAC 81-005 and MAC 82-03. As shown in the examples evaporative system compliance for each engine family is generally based on data averages from the "worst case" test motorcycle deterioration factor and "worst case" bench test deterioration factor of the group added to the emission data from the minimum test distance motorcycle representing the "worst case" of each engine family.

If you have any questions, please contact Mr. R. J. Kenny at (213) 575-6847.

A handwritten signature in black ink, appearing to read 'K. D. Drachand', with a long, sweeping horizontal line extending to the right.

K. D. Drachand, Chief  
Mobile Source Control Division

Enclosure

MANUFACTURERS ADVISORY CORRESPONDENCE 82-03

Subject: California Motorcycle Certification Procedures

Applicability: 1983 and subsequent model year motorcycle evaporative emission control systems.

Reference:

1. California Evaporative Emission Standards and Test Procedures for 1978 and Subsequent Model Year Gasoline-Powered Motor Vehicles as last amended on June 8, 1981.
2. Manufacturers Advisory Correspondence #81-005.
3. Title 13, California Administrative Code, Section 1958. Exhaust Emission Standards and Test Procedures - Motorcycles Manufactured on or after January 1, 1978.

Background:

Several motorcycle manufacturers have requested clarification of Manufacturers Advisory Correspondence (MAC) #81-005, dated June 8, 1981. The staff met with these manufacturers and discussed their concerns regarding the determination of evaporative deterioration factors and the demonstration of compliance with evaporative standards.

This MAC supplements the California evaporative emission procedures, Reference 1 above, as they apply to motorcycles only. This MAC is not intended to determine the selection of vehicles or test requirements which are specified in the reference documents. The rules and examples contained in this document are to show how compliance and deterioration factors will be determined if the test data is already available.

A. EVAPORATIVE CONTROL SYSTEM DETERIORATION FACTOR DETERMINATION

The following table is provided to illustrate how certification deterioration factors (DF) shall be determined.

<u>EVAP. FAMILY GROUP*</u>	<u>EXHAUST FAMILY</u>	<u>EVAP. FAMILY</u>	<u>GROUP VEHICLE DF</u>	<u>GROUP BENCH TEST DF</u>	<u>GROUP** CERTIFICATION DF</u>
W	(1) (2) 3 4	<u>/A/</u> A B C	Determine evaporative DF from exhaust family only (worst evaporative case). No evaporative DF is required for exhaust family 2.	Evaporative family A - worst case	$DF_W = \frac{DF_1 + DFA}{2}$
X	(5) (6) 7	D <u>/E/</u> F	Evaporative DF's are required for exhaust families 5 and 6 and will be averaged with evaporative family DF's D and E, respectively. The average DF of 5 and 6 will be used for evaporative family F.	Evaporative family E - worst case	$DF_{XD} = \frac{DF_5 + DFE}{2}$ $DF_{XE} = \frac{DF_6 + DFE}{2}$ $DF_{XF} = \text{AVG. DF}$ $\frac{5 \text{ \& } 6 + DFE}{2}$
Y	8 (9) 10	<u>/G/</u> H I	Use the vehicle DF from exhaust family 9.	Evaporative family G - worst case	$DF_Y = \frac{DF_9 + DFG}{2}$
Z	11 12 13	J K <u>/L/</u>	None	Evaporative family L - worst case	$DF_Z = DFL$

\* Evaporative families grouped per appendix B - MAC 81-005.

( ) Exhaust Certification service accumulation vehicle.

/ Worst case evaporative family per appendix C - MAC 81-005.

\*\* Group DF is average of durability motorcycle DF and bench test DF, when applicable

1. California Air Resources Board will not require vehicle service accumulation for the sole purpose of determining evaporative emission control system family deterioration and durability. That is, an evaporative emissions durability vehicle would not be required when the vehicle is equipped with a Federal exhaust emission control system or the exhaust emission family is carry-over/carry-across from a previously certified exhaust family that did not also have an evaporative emission control system.
2. If a subsequent "worst case" evaporative family is added to a manufacturer's product line, the new evaporative family will require bench testing to determine its bench test DF.
3. If, subsequent to initial certification, a manufacturer is required to run a service accumulation vehicle for exhaust control system certification and the vehicle is equipped with a previously certified evaporative family which does not have its specific vehicle derived DF, redetermination of the evaporative family certification deterioration factor will be required.


For example, if in the above table a vehicle representing exhaust family 4 is being tested after initial certification or a new exhaust family is being added, a vehicle derived DF will also be required for evaporative family C. The new certification DF for evaporative family C will be the average of the vehicle DF from exhaust family 4 or the new exhaust family and the bench test DF from evaporative family A.

4. If the newly derived DF discussed in paragraph 3 produces a condition of noncompliance for evaporative family C, the manufacturer will be required to recall and correct all previously sold vehicles equipped with evaporative family C.

#### B. EVAPORATIVE EMISSION STANDARDS COMPLIANCE

1. It is CARB's requirement that a compliance demonstration be performed for each evaporative emission control system family. The "worst case" configuration from each evaporative family shall be used in the demonstration.
2. Carry-over and/or carry-across will be considered where the manufacturer shows that characteristics of evaporative families are similar by engineering evaluation or other means. This would apply to models having the same design, materials, configuration and deterioration characteristics. It will not apply to a new "worst case" configuration.

3. The California Evaporative Test Procedures, paragraph 8 a. vii., covers compliance requirements for the case where no motorcycle of a California exhaust configuration is being tested. A stabilized motorcycle is then required for demonstration of evaporative emission compliance and is defined in paragraphs 8 a. ii and 8 a. vii of these procedures and this motorcycle will have accumulated at least the minimum test distance.



K. D. Drachand, Chief  
Mobile Source Control Division